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Schnitzer

P.O. Box 747
Oakland, CA 94604
(253) 279-4752

September 24, 2019

Carol Lee
Supervising Air Quality Engineer
Bay Area Air Quality Management District
Engineering Division
375 Beale Street, Suite 600
San Francisco, CA 94105

RE: ***Response to September 12, 2019 BAAQMD Letter of Incompleteness***
Plant #208 – Schnitzer Steel Industries
Application #30009

Ms. Lee:

Schnitzer Steel Industries (Schnitzer) owns and operates a scrap metal recovery, shredding, and recycling facility in Oakland, California (the Facility) within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Schnitzer operates the Facility under a Permit to Operate (PTO) for Plant ID #208.

On July 3, 2019, Schnitzer submitted an Authority to Construct (ATC) permit application (the Application) to BAAQMD for the installation of two regenerative thermal oxidizer (RTO) control devices and two packed bed scrubbers to supplement the existing shredder abatement system. The purpose of the RTOs is to reduce precursor organic compound (POC) emissions at the Facility.

On September 12, 2019, Schnitzer received a letter from BAAQMD deeming the Application incomplete and requesting additional information necessary to complete the Application (the Letter of Incompleteness). This response letter includes Schnitzer's responses to the questions raised by BAAQMD. The comments and questions in the Letter of Incompleteness are set forth below in bold font, followed by Schnitzer's responses in plain text:

In order to complete your application, the following is needed:

1. **Please confirm that your permit application contains no requested changes to S-10 Cement Silo and that emission calculations provided for the source were for information purposes only.**

   Schnitzer is not requesting any changes to S-10, the cement silo, as part of Application #30009. Information on the cement silo was included for informational purposes only.

2. **Please submit a Completed Health Risk Assessment (HRA) form for the fugitive emissions that will not be emitted by the emission points P-17 and P-18. This HRA form will be reviewed as an area/volume source.**

   An HRA form for fugitive emissions from the shredder enclosure is attached. As requested, this form represents fugitive emissions from the shredder that are not captured by the existing or proposed control devices.

3. **Please provide revised Emission Point P Forms for P-17 and P-18 to match the data provided in your HRA forms for the emission points. In addition, if you have further information regarding your abatement devices (i.e., make and model or other information that was "TBD" on forms that were submitted), please resubmit them.**

   Engineering design is underway, but the abatement devices have not yet been specified. Schnitzer will provide this information in a follow-up response as soon as possible as further information becomes available.

4. **In performing the Health Risk Screening analysis, please indicate your estimated emission from each emission point (P-17 and P-18). Should we assume a 50%/50% split between the two emission points for all criteria and toxic air contaminant emissions?**

   The exhaust flow from the shredder will be split evenly (50%/50%) between the two RTOs. The two emission points (P-17 and P-18) will have the same emissions.

5. **In your emission calculations for the combustion of natural gas in the thermal oxidizers, you limited your natural gas usage by limiting hours of operation and the firing rate of the burner during normal operation and standby operation. As a result, emissions were based on natural usage of [redacted] MMscf per year for each of the thermal oxidizers. Please note that we intend to impose natural gas usage limits reflecting the basis of your emission calculations. In other words, we will likely impose throughput limits of [redacted] therms ([redacted] MMscf) for each thermal oxidizer. Do you have any comments regarding this throughput limit?**

   Please note that the District's question includes confidential information that may not be released to the public. The information in question is highlighted and must be redacted from any public version of the Letter of Incompleteness. Schnitzer will provide this information in a follow-up response as soon as possible as further information is available prior to the 30-day response timeline listed in the Letter of Incompleteness.

6. **Toxic air contaminant emissions from the combustion of natural gas were not estimated for the thermal oxidizers. Please use the emissions factors in AP-42 Table 1.4-3 to estimate all TAC emissions which have a toxics trigger level in Regulation 2-5. For those pollutants with emission factors that are indicated to be less than the detection level, please use half the detection level as the emission factor.**

   As directed, Schnitzer has estimated the toxic air contaminant (TAC) emissions from the RTO natural gas combustion using emission factors in AP-42 Tables 1.4-2, 1.4-3 and 1.4-4. See Attachment 2 of this response letter. In Table 2, Schnitzer has compared the RTO natural gas combustion emissions based on AP-42 with total shredder TAC emissions which are based on emission factors developed from actual source tests, presented in the original Application submittal.[1] Table 2 also shows the percentage increase represented by adding the RTO natural gas combustion TAC emissions calculated using AP-42 to the total shredder TAC emissions estimated using actual source test values. As seen in Attachment 2, all natural gas TAC emissions calculated on the basis of AP-42 values are lower, on an annual basis, than TAC emissions calculated using source test estimates, and represent an increase in shredder emissions of less than 1% - well within the error of measurement. With the exception of the calculated TAC emissions for cadmium, hexavalent chromium, and hexane, the same is true for maximum hourly emissions. For those

[1] The results of the source test values were submitted to BAAQMD on March 29, 2019 and updated on May 7, 2019.

three pollutants, it is scientifically improbable that the small amount of combustion of natural gas in the RTO burners would generate 4% (in the case of cadmium), 126% (in the case of hexavalent chromium) and 45% (in the case of hexane) of the emissions of the same TACs from the shredder. Hence, we believe these three AP-42 emission factors for natural gas combustion in the RTO are not technically defensible and should not be used.

Similarly, for pollutants such as beryllium, copper, formaldehyde, manganese, mercury, naphthalene, nickel, PAHs, and selenium, it is extremely unlikely that those pollutants would be generated in measurable concentrations by the RTO when they were not detected in the current shredder exhaust.

Consequently, Schnitzer believes that the existing emission factors for the listed TACs from shredder operations adequately represent the emissions of those same TACs when the RTO will be installed.

Please find two versions of the emission calculation tables in Attachment 2 of this response letter. Per BAAQMD Regulation 2, Rule 1, Section 2-1-402.7, one version of the attachment (marked "trade secret") has values intact with trade secret and confidential information clearly identified, and the other version of the attachment (marked "public copy") has all of the confidential cells redacted. The information marked confidential is done so on the basis that it is critical detailed process and equipment design information including throughput values, operating hours, and firing rates. Further, the production data and process design information are considered as trade secret based upon Government Code Section 6254.7(d).

7. **Regulation 2-1-426.2 specifies the CEQA-related information requirements for a project when an agency other than the District is to be the Lead Agency under CEQA. As a result, until the Port of Oakland decides how whether [sic] a CEQA review is required, we cannot deem your application complete. If the Port of Oakland decides to conduct a CEQA review, then your application will remain incomplete until you can meet provide [sic] what is specified in Regulation 2-1-426.2. If the Port of Oakland decides that a CEQA review is not necessary, please provide written confirmation of that decision or provide contact information for us to verify the decision.**

   Schnitzer will provide this information in a follow-up response. Schnitzer understands that it's Application is subject to CEQA.

We appreciate BAAQMD's review of this information. Please do not hesitate to contact me at (510) 839-4714 or Scott Sloan at (425) 420-1863 if you have any questions regarding this submittal.

Sincerely,

Pamela Gray

Pamela Gray
Regional Environmental Manager, West

Attachments

Attachment 1 – HRA Form

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Form HRA

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

375 Beale Street, Suite 600, San Francisco, CA 94105. . . (415) 749-4990 . . . FAX (415) 749-5030 OR 4949

WEBSITE: WWW.BAAQMD.GOV

Health Risk Assessment

IMPORTANT: For any permit application that requires a Health Risk Assessment, fill out one form for each source that emits a Toxic Air Contaminant(s) [or for a group of sources that exhaust through a common stack]. Emissions can be from a discrete point source (with stack) or a source with fugitive emissions (area or volume source). You must provide a plot plan (drawn to scale, if possible) and a local map (aerial photos are recommended), which clearly demonstrate the location of your site, the source(s), property lines, and any surrounding buildings [see attached example]. Label streets, schools, residences, and other businesses. List major dimensions of all buildings surrounding the source in Section C.

Plant Name: Schnitzer Steel Industries, Inc. Plant No.: 208

Source Description: Metal recycling facility

Source No.: S-6,7 (if known) Emission Point No.: P- N/A - This is for an area/volume source. (if known)

SECTION A *(Point Source)*

1. Does the source exhaust at clearly defined emission point; i.e., a stack or exhaust pipe? ☐ YES OR ■ NO

   (If YES continue at #2, If NO, skip to Section B)

2. Does the stack (or exhaust pipe) stand alone or is it located on the roof of a building? ☐ alone OR ☐ on roof

   Important: If stack is on a roof, provide building dimensions on line B1 in Section C.

3. What is the height of the stack outlet above ground level? _____ feet OR _____ meters?

4. What is the inside diameter of the stack outlet? _____ inches OR _____ feet OR _____ meters

5. What is the direction of the exhaust from the stack outlet? ☐ horizontal OR ☐ vertical

6. Is the stack outlet: ☐ open or hinged rain flap OR ☐ rain capped (deflects exhaust downward or horizontally)

7. What is the exhaust flowrate during normal operation? _____ cfm (cubic feet/min) OR _____ meters^3/second

8. What is the typical temperature of the exhaust gas? _____ degrees Fahrenheit OR _____ degrees Celsius

   (Skip Section B and Go on to Section C)

SECTION B *(Area/Volume Source)*

This section applies to fugitive emissions that are NOT captured by a collection system nor directly emitted through a stack or other emission point. Volume sources have fugitive emissions generally released within a building or other defined space (e.g., dry cleaner, gasoline station canopy). Area sources are generally flat areas of release (e.g., landfill, quarry).

1. Is the emission source located within a building? ■ YES (go to #2) OR ☐ NO (go to #3)

2. If YES (source inside building), provide building dimensions on line B1 in Section C

   a. Does the building have a ventilation system that is vented to the outside? ■ YES OR ☐ NO

   b. If NO (ventilation), are the building's doors & windows kept open during hours of operation? ☐ YES OR ☐ NO

3. If NO (source not inside building), provide a description of the source, dimensions, & indicate location on plot plan.

_____

_____

(Go on to Section C)

SECTION C *(Building Dimensions)*

Provide building dimensions. Use Line B1 only for building with source/stack on the roof or with fugitive emissions inside building. Use Lines B2-B9 for buildings surrounding the source (within 300 feet). Distance and direction are optional if map and/or aerial photo are adequately labeled with locations of buildings. Check one for units: ■ feet OR ☐ meters

B#	Building name or description	Height	Width	Length	Distance To Source	Direction To Source
B1	Building with source:	85	80	150	n/a	n/a
B2	Transformer Building	20.25	33.50	56.40		
B3	Shear Building	16	45	80.50		
B4	Water Tank	24	35	35		
B5						
B6						
B7						
B8						
B9						

NOTE: Label buildings by B# on plot plan, map and/or aerial photo. Provide comments below for any details that need additional clarification (e.g., list buildings that are co-occupied by your employees and other workers, residents, students, etc).

_____

_____

_____

_____

(Go on to Section D)

SECTION D *(Receptor Locations)*

NOTE: Indicate on maps or aerial photos the residential and nonresidential areas surrounding your facility.

1. Indicate the area where the source is located (check one):
   - ☐ zoned for residential use
   - ☐ zoned for mixed residential and commercial/industrial use
   - ■ zoned for commercial and/or industrial use
   - ☐ zoned for agricultural use
2. Distance from source (stack or building) to nearest facility property line = 190 feet OR _____ meters
3. Distance from source (stack or building) to the property line of the nearest residence = 2,580 feet OR _____ meters
4. Describe the nearest nonresidential property (check one): ■ Industrial/Commercial OR ☐ Other _____

   _____
5. Distance from source (stack or building) to property line of nearest nonresidential site = 190 feet OR _____ meters
6. Distance from source to property line of nearest school* (or school site) = _____ feet OR ■ Greater than 1,000 feet

   [Note: Helpful website with California Dept. of Education data: www.greatschools.net]

   Provide the names and addresses of all schools* that have property line(s) within 1,000 feet of the source:

   _____

   _____

*K-12 and more than twelve children only

HRA-101817


300 ft
B1
Shredder/B1
B2
B3
B4
265 ft
Google Earth

Attachment 2 – TAC Emission Calculations

Table 1. RTO Natural Gas Consumption Parameters

Parameter	Value	Units
Abatement Device ID (A#)	A-NEW1, A-NEW2	
Daily Hours of Operation (Operating Capacity)[1]	[REDACTED]	hr/day
Daily Hours of Operation (Standby Capacity)[1]	[REDACTED]	hr/day
Annual Hours of Operation (Operating Capacity)[2]	[REDACTED]	hr/yr
Annual Hours of Operation (Standby Capacity)[2]	[REDACTED]	hr/yr
RTO Burner Heat Rating (Operating Capacity)[3]	[REDACTED]	MMBtu/hr
RTO Burner Heat Rating (Standby Capacity)	[REDACTED]	MMBtu/hr
Natural Gas HHV[4]	1.02E-03	MMBtu/scf
Gas Firing Rate (Operating Capacity)[5]	[REDACTED]	MMscf/hr
Gas Firing Rate (Standby Capacity)[5]	[REDACTED]	MMscf/hr

1. Hours of operation for the RTO at operating capacity per day are assumed to be [REDACTED] hours per day. The RTO will operate at a standby capacity the remaining [REDACTED] hours of the day.

2. Annual Hours of Operation of the RTO conservatively assumed to be [REDACTED] hours for 365 days, which is [REDACTED] hours per year. The remaining time, the RTO is conservatively assumed to be operating at standby capacity.

3. Estimated heat rating for RTO operation at operating capacity based on a similar Schnitzer facility. The unit is assumed to fire at [REDACTED] during startup and at [REDACTED] during normal operation for [REDACTED] per day, per Schnitzer.

4. Natural Gas HHV obtained from BAAQMD's *Policy: Emission Factors for Toxic Air Contaminants from Miscellaneous Natural Gas Combustion Sources,* effective September 7, 2005.

5. Gas Firing Rate (MMscf/hr) = Heat Rating (MMBTU/hr) / Natural Gas HHV (MMBTu/scf) / 1E+06 scf/MMscf.

Table 2. RTO TAC PTE Summary[1]

	RTO Natural Gas Combustion TAC Emissions using AP-42 Factors			Total Shredder TAC Emissions using Source Test Factors			AP-42 Values for RTO as a Percentage of Current Source Test Values	
Pollutant	Emission Factor[2,3]	Maximum Hourly Emissions[4]	Annual Emissions[5]	Emission Factor[6,7]	Maximum Hourly Emissions[8]	Annual Emissions[9]	Maximum Hourly Emissions	Annual Emissions
	(lb/MMscf)	(lb/hr)	(lb/yr)	(lb/ton)	(lb/hr)	(lb/yr)	%	%
Acetaldehyde	N/A	N/A	N/A	[REDACTED]	6.40E-03	11.52	--	--
Arsenic	2.00E-04	[REDACTED]	4.47E-05	N/A	N/A	N/A	--	--
Benzene	2.10E-03	[REDACTED]	4.69E-04	[REDACTED]	2.35E-02	42.22	0.16%	0.00%
Beryllium	1.20E-05	[REDACTED]	2.68E-06	N/A	N/A	N/A	not detected	not detected
Butadiene, 1,3-	N/A	N/A	N/A	[REDACTED]	6.06E-04	1.09	--	--
Cadmium	1.10E-03	[REDACTED]	2.46E-04	[REDACTED]	4.55E-04	0.82	4.38%	0.03%
Chromium, Hexavalent	1.40E-03	[REDACTED]	3.13E-04	[REDACTED]	2.02E-05	0.04	125.58%	0.86%
Copper	8.50E-04	[REDACTED]	1.90E-04	N/A	N/A	N/A	not detected	not detected
Ethyl Benzene	N/A	N/A	N/A	[REDACTED]	4.97E-02	89.43	--	--
Formaldehyde	7.50E-02	[REDACTED]	1.68E-02	N/A	N/A	N/A	not detected	not detected
Hexane	1.80E+00	[REDACTED]	4.02E-01	[REDACTED]	7.20E-02	129.53	45.37%	0.31%
Isopropyl Alcohol	N/A	N/A	N/A	[REDACTED]	7.19E-03	12.95	--	--
Lead	5.00E-04	[REDACTED]	1.12E-04	[REDACTED]	3.22E-03	5.79	0.28%	0.00%
Manganese	3.80E-04	[REDACTED]	8.49E-05	N/A	N/A	N/A	not detected	not detected
Methanol	N/A	N/A	N/A	[REDACTED]	1.09E-02	19.65	--	--
Methyl Chloroform	N/A	N/A	N/A	[REDACTED]	3.81E-03	6.86	--	--
Methyl Ethyl Ketone	N/A	N/A	N/A	[REDACTED]	1.08E-02	19.39	--	--
Methylene Chloride	N/A	N/A	N/A	[REDACTED]	1.73E-03	3.12	--	--
Mercury	2.60E-04	[REDACTED]	5.81E-05	N/A	N/A	N/A	not detected	not detected
Naphthalene	6.10E-04	[REDACTED]	1.36E-04	N/A	N/A	N/A	not detected	not detected
Nickel	2.10E-03	[REDACTED]	4.69E-04	N/A	N/A	N/A	not detected	not detected
Perchloroethylene	N/A	N/A	N/A	[REDACTED]	2.35E-03	4.22	--	--
PCBs	N/A	N/A	N/A	[REDACTED]	3.45E-04	0.62	--	--
Propylene	N/A	N/A	N/A	[REDACTED]	1.51E-02	27.11	--	--
PAHs[10]	1.04E-03	[REDACTED]	2.32E-04	N/A	N/A	N/A	not detected	not detected
Selenium	2.40E-05	[REDACTED]	5.36E-06	N/A	N/A	N/A	not detected	not detected
Styrene	N/A	N/A	N/A	[REDACTED]	7.74E-03	13.94	--	--
Toluene	3.40E-03	[REDACTED]	7.60E-04	[REDACTED]	2.01E-01	362.13	0.03%	0.00%
Vanadium	2.30E-03	[REDACTED]	5.14E-04	N/A	N/A	N/A	--	--
Xylenes (mixed)	N/A	N/A	N/A	[REDACTED]	1.85E-01	333.88	--	--
o-Xylene	N/A	N/A	N/A	[REDACTED]	6.83E-02	122.91	--	--

1. As requested in Item #6 of the September 12, 2019 Letter of Incompleteness from BAAQMD, this table estimates all Toxic Air Contaminant (TAC) emissions from the combustion of natural gas in the proposed shredder RTOs using AP-42 factors which have a toxics trigger level in Regulation 2-5 and compares these to TAC emission estimates of the existing shredder using source test values.

2. Combustion emissions from the flameless RTO are expected to be negligible; however, emissions are conservatively estimated based on AP-42 in place of manufacturer specifications. Emission Factors obtained from AP-42 Section 1.4, Natural Gas Combustion, Tables 1.4-2, 1.4-3 and 1.4-4.

3. Emission factors listed as "N/A" are for pollutants which do not have an emission factor listed in AP-42 Chapter 1.4.

4. Maximum Hourly Emissions (lb/hr) = Emission Factor (lb/MMscf) * Operating Gas Firing Rate (MMscf/hr).

5. Annual Emissions (lb/yr) = Emission Factor (lb/MMscf) * [Gas Firing Rate at Operating Capacity (MMscf/hr) * Annual Hours of Operation at Operating Capacity (hr/yr) + Gas Firing Rate at Standby Capacity (MMscf/hr) * Annual Hours of Operation at Standby Capacity (hr/yr)] * 2 Units.

6. Emission factors based on summarized source test results compiled in spreadsheet submitted to Carol Allen on March 29, 2019 and updated on May 7, 2019. Emission factors account for the shredder enclosure capture efficiency of 95%.

7. Emission factors listed as "N/A" are for pollutants that were not detected or not tested in the source tests.

8. Hourly Emissions (lb/hr) = Emission Factor (lb/ton) * Maximum Hourly Throughput (tons/hr) * (1 - Control Device Efficiency (%)). The Venturi Scrubber is already accounted for in PM emissions while the RTO control is applied to POC emissions. As such, the 98% control efficiency from the RTOs is not applied to cadmium, hexavalent chromium or lead.

9. Annual Emissions (lb/yr) = Emission Factor (lb/ton) * Maximum Annual Throughput (ton/yr) * (1 - Control Device Efficiency (%)). The Venturi Scrubber is already accounted for in PM emissions while the RTO control is applied to POC emissions.

10. The PAHs account for the emissions of the following TACs per Footnote 8 of BAAQMD Table 2-5-1: 3-Methylcholanthrene, 7,12-Dimethylbenz(a)anthracene, Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene,